

Work Order ID 146716

May 20, 2016 2:36:03 PM

146716

Page 1

Item ID: D407-667-105PHI

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/30/2016 Req'd Qty: 1.00

1

Customer:

Reference: *28*

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D407-667-145	Rev C (DEO)
DSI9565	A
DSI9628	A

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels as per PPP D407-667-105 CHG005

DAS
28
9-89

AUG 10 2016

110

0.00

110

Packaging

Packaging

Memo

0.00

Packaging

TU *16-06-13*

D407-667-105 HI/146716

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Page 2

Item ID: D407-667-105PHI**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** Fwd Crosstube - High 407**Start Date:** 5/17/2016 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 6/30/2016 **Req'd Qty:** 1.00***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120	BENDING MACHINE - CROSSTUBES								
CNC Bend 2	Memo	1.50							
CNC Alpha 160 Bender	Bend tube as per Dwg D407-667-145 using CNC bender program 407-fw								
130	QC15- Crosstube Dimensional Check	0.00							
130									
QC	Memo	0.00							
Quality Control									

 16-06-13

① 16-06-13

DAS
9
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE**DART**
AEROSPACE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td style="border: none;"></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 6/30/2016 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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140

0.00

140

Crosstubes

5.42

Crosstubes

Crosstubes

Memo

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: DP *****

1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes. Holes facing inboard.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: DP *****

2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-145. Note: Fwd side has 3x top holes. Facing inboard.

3- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: DP *****

5- Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: DP *****

TW 16-06-04

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐																																																																									
Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐																																																																									
Positioned Wrong ☐																																																																											
Outside Dimensions ☐																																																																											
Over/Under tolerance ☐																																																																											
Part Incorrect ☐																																																																											
Part Lost/Missing ☐																																																																											
Part Moved ☐																																																																											
Drawing ☐																																																																											
Finish ☐																																																																											
Misread ☐																																																																											
Turning Sequence ☐																																																																											
OTHER :																																																																											

Work Order ID 146716***146716***

Page 4

May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/30/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

6- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-145.

7- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

8- Scribe part # and batch # using vibrating stylus as per Dwg D407-667-145
Inside of Cuff (Do not engrave on outside of tube)9- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr
& Inspect for surface damage. Repair damage within limits as per Dwg D407-667-145

150

0.00

150

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

IMMEDIATELY AFTER GRINDING

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.

16-06-14

16-06-14

16-06-14

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Work Order ID 146716

146716

Page 5

May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Fwd Crosstube - High 407
 Start Date: 5/17/2016 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 6/30/2016 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC7-Inspect Chemical Conversion Coat	0.00							DAS 38 9-89
160									
QC	Memo	0.01							
Quality Control									JUN 15 2016
170	QC5- Inspect part completeness to step on W/O	0.00							DAS 38 9-89
170									
QC	Memo	0.02							
Quality Control									JUN 15 2016
180	Outsource process - NDT per QSI038 4.1	0.00							
180									
Outsource2	Memo	180.00							
Outsource process - NDT	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								

OUTSIDE SERVICE -CROSSTUBES
 Liquid Penetrant Inspection as per QSI 038 Or
 Issue P/O: 32707 LPI as per ASTM 1417
 Level 2 Attach copy of NDT results to work order

6 1606.15

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
		OTHER : _____																							

Work Order ID 146716***146716***

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May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/30/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	Packaging	0.00							
190									
Packaging	Memo	0.00							
Packaging	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for transit damage Ensure copy of NDT results attached to work order.								
200	QC5- Inspect part completeness to step on W/O	0.00							
200									
QC	Memo	0.02							
Quality Control	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D206-667-145								

16.06.15

JUN 15 2016

DAS
9
2-89

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____				
Description Work Order Deviation				Disposition							
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter		FAULT CATEGORY		☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes		☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center		☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence	
		☐ OTHER : _____									

DQA:

Date: 16.08.24



QA Closed:

Date: 16.08.11

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

Work Order: 146716		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. D407-667-105		Rework ☒		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. 16-5965		Scrap ☐		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
		Use-as-is ☐		Thermoforming ☐	Finishing ☒	Rec/Store/Packaging ☐	Other ☐		
		Suspected Unapproved ☐		Large Fab ☐	Composite ☐	Supplier ☐			
Date: 16-07-12		Step #: 210		QTY Effective: ①			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition			DAS 9 16-07-12		
Too much dirt in paint, due to wrong filter size.				Scuff and re-apply topcoat per QSI 005.			DAS Completed By		
							41 16-7-11		
							Lead hand / Supervisor Approval Verification		
							DAS 9 16-07-12		
							QC / QA Coordinator Approval		
							DAS 9 16-07-12		

Root Cause			FAULT CATEGORY		
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☒	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☒
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER :			

Work Order ID 146716

146716

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May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/30/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp DAS
230	Crosstubes	0.00							41
230						1			9-89

Crosstubes

Memo

2.69

16-7-18

Crosstubes

INSTALL GROUNDING CLAMP AND SEAL WITH SIKAFLEX AS PER
DWG AND DEO
A/R SIKAFLEX BATCH: 135254

1-Abraze mating surfaces of support and crosstube with 180 grit sandpaper,
clean the area with MEK or equivalent as per dwg

2-Install supports with Proseal 890 per D407-667-145 (DEO) and QSI 015
A/R Proseal 890 Batch: 135043
EXP: 12/16

3-Install supports clamps Using Dt9565 as per Dwg D407-667-145
(DEO), Torque to 80-100 IN-LBS.
PROSEAL CURE TIME 72 HOURS:
Start: 16-7-18
Finish: 16-7-21

4-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron
paint.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause			FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐			
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐			
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐			
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐			
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐			
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐			
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐			
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐			
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐			
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐			
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____						
Misidentified ☐	Past Due ☐							

Work Order ID 146716

146716

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May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Fwd Crosstube - High 407
Start Date: 5/17/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 6/30/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	QC5- Inspect part completeness to step on W/O	0.00							DAS 16 9-89 16/08/12
240									
QC	Memo	0.02							
Quality Control	***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.*** Scrub w/ 146716 ***VERIFY RESISTANCE AS PER NOTE 18 AND DWG DEO***								
250	Pick Kit	0.00							
250									
Packaging	Memo	0.00							
Packaging									
260	QC4- 100% Inspect kits for completeness	0.00							
260									
QC	Memo	0.03							
Quality Control									

(XL)

PC
DAS
27
9-89
AUG 09 2016

DAS
28
9-89

AUG 10 2016

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 146716

146716

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May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI

Accept

N900040100

Setup

Start

NS1

Revision ID:

Stop

NS2

Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/30/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run

Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

270

0.00

270

Packaging

Packaging

Memo

0.00

Identify and pack for shipping as per PPP D407-667-105

Location: _____

PPP Rev: _____

8033

DAS

27

9-89

AUG 10 2016

280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.10

Quality Control

16.08.10
2m 16/08/10

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

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Page 1

Work Order ID: 146716

146716

Parent Item: D407-667-105PHI

D407-667-105PHI

Parent Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016

Required Date: 6/30/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.24 NEW ISSUE II VERF:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D206-667-017		Manufactured	No				Each	8.0000		1		DAS 41 9-89	
D206-667-017									**			16-8-4	
Grounding Strap													

Location	Loc Qty	Loc Code
FG	120181	
	134884	
	97504	
LG050		
	140987	

AN5-32A Purchased No 250 Each 169.0000 4 4

AN5-32A

Bolt

PC **DAS**
27
9-89

Location	Loc Qty	Loc Code
over004	60	
m133988	60	
ST336	102	
m132536	2	
m133323	4	
m133769	96	
ST337	7	
m131139		

DAS
28
9-89

AUG 08 2016

ANS-10A **DAS** 28 9-89 Qty 10-M135135
ANS-30A **DAS** 28 9-89 Qty 4-M133932
MS21042LS **DAS** 28 9-89 Qty 4-M134955
NAS1149D05635 **DAS** 28 9-89 Qty 18-M135058

DAS 27 9-89
DAS 27 9-89
DAS 27 9-89
DAS 27 9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Picklist Print

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Page 2

Work Order ID: 146716

146716

Parent Item: D407-667-105PHI

D407-667-105PHI

Parent Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016

Required Date: 6/30/2016

Start Qty: 1.00

Required Qty: 1.00

D407-667-105TRN

Manufactured No

110

Each

6.0000

1

1

D407-667-105TRN ✓

Crosstube Turning Detail

Location

Loc Qty

Loc Code

LG014

6

140424

1

140425

1

140426

1

140427

1

140428

1

140429

1

D2873-043

Manufactured No

230

Each

50.0000

2

D2873-043 ✓

Nut Plate Assembly

Location

Loc Qty

Loc Code

LG050

50

140075

10

141436

40

D2873-045

Manufactured No

230

Each

34.0000

2

D2873-045 ✓

Nut Plate Assembly

Location

Loc Qty

Loc Code

LG050

34

138976

24

141042

10

① 2 TW 16-06-13
DAS 41 16-6-28
9-89 2

DAS 41 16-6-28
9-89 2

2

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Shop Packet Print

Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																							
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OTHER : _____																																																															

Picklist Print

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Work Order ID: 146716

146716

Parent Item: D407-667-105PHI

D407-667-105PHI

Parent Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016

Required Date: 6/30/2016

Start Qty: 1.00

Required Qty: 1.00

D2891-1

Manufactured No

230

Each

29.0000

2

2

DAS

41

9-89

16-7-13

D2891-1

Support 2.25

**

Location

Loc Qty

Loc Code

FG

2

84164

2

LG050

7

40982

7

2

LG052

20

145015

20

D3595-063-395

Manufactured No

230

Each

71.0000

4

4

DAS

41

9-89

16-7-13

D3595-063-395

Rubber Cushion 0.63" wide x 3.95" Long

**

Location

Loc Qty

Loc Code

FG

4

87353

4

LG051

67

135042

4

136512

7

140124

56

4

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐				Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐				Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐				Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐											
		OTHER : ☐																							

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Work Order ID: 146716

146716

Parent Item: D407-667-105PHI

D407-667-105PHI

Parent Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016

Required Date: 6/30/2016

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

Each

112.0000

4

DAS

MS21920-20 ✓

41

9.89

16-7-13

Clamp

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

58

m133483

10

m133932

48

4

LG056

52

m128650

1

m132675

1

m134055

50

MS20601-AD4W10

Purchased

No

230

Each

240.0000

14

14

DAS

MS20601-AD4W10 ✓

41

9.89

16-6-28

RIVET

Location

Loc Qty

Loc Code

LG050

240

M128594

4

M128701

17

M133091

19

14

M133917

50

M134130

50

M134514

50

M134590

50

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Misidentified ☐	Past Due ☐																																																																

Item	Qty -145	Part Number	Description
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

DEO ATTACHED

ECW #11-615

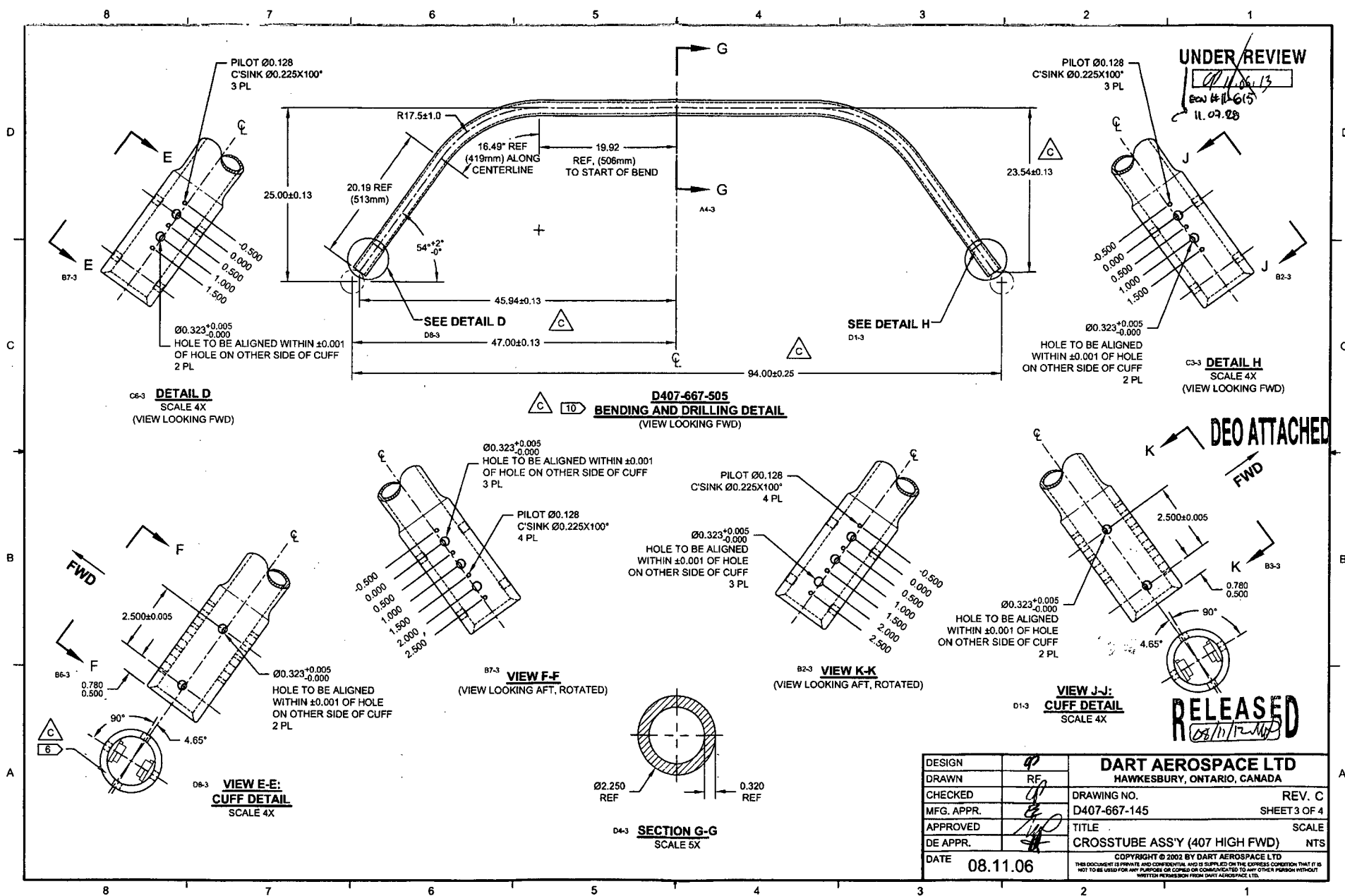
11.07.26

UNDER REVIEW

RELEASED
05/11/12

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	02.05.08
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN	RF		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.11.06		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D407-667-145	REV. C SHEET 1 OF 4
TITLE CROSSTUBE ASSY (407 HIGH FWD)	SCALE NTS
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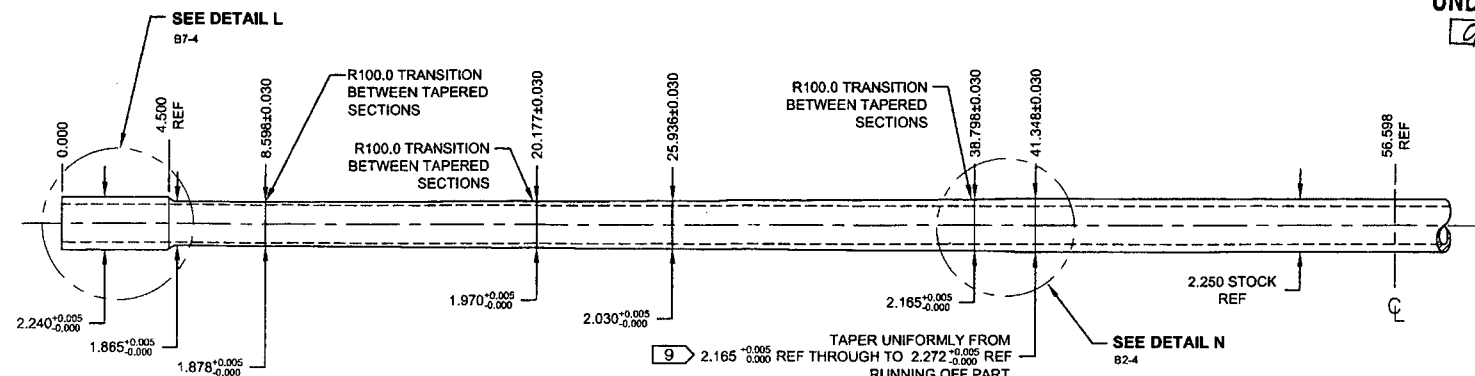


UNDER REVIEW

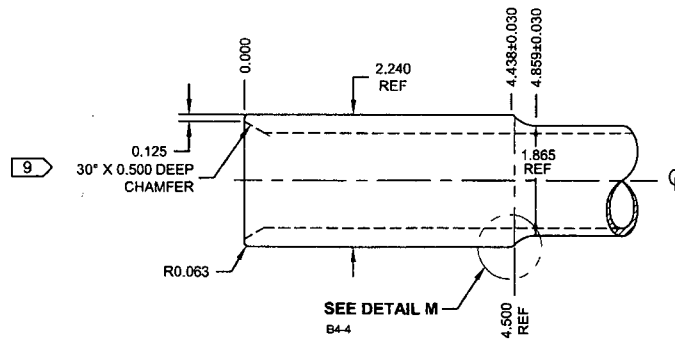
CP 11/08/13

60111.615

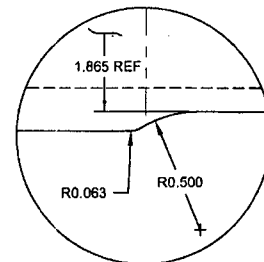
1.07.26



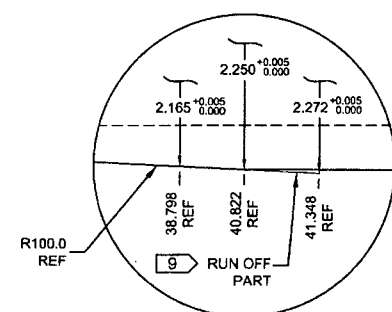
TURNING DETAIL



DETAIL L:
D7-4 CROSSTUBE CUFF
NOT TO SCALE



DETAIL M:
B6-4 CUFF TRANSITION
NOT TO SCALE



DETAIL N:
C3-4 TAPER RUN-OFF
NOT TO SCALE

DEO ATTACHED

RELEASED
08/11/13

DESIGN	CP	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	CP	D407-667-145	SHEET 4 OF 4
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD	
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DRAWING NO. D407-667-145	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-145-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>97</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>188</i>	APPROVED <i>WD</i>		DE APPR. <i>##</i>		
DATE 11.07.15	DATE 11.07.22	DATE 11.07.22	DATE 11/07/22		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -145	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
WD

DRAWING NO. D407-667-145	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D407-667-145-C-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN AJS	CHECKED A	MFG. APPR. E	APPROVED AP	DE APPR. H		
DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	

PURPOSE:

ADD ELECTRICAL GROUNDING STRAP

CHANGE:

ITEM	QTY -145	PART NUMBER	DESCRIPTION
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

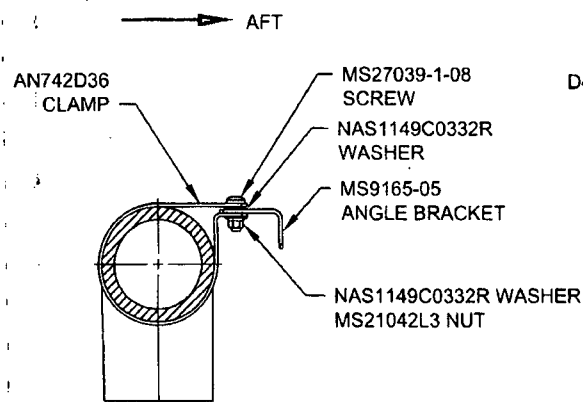
ADD

GENERAL NOTES:

- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING
- 17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS

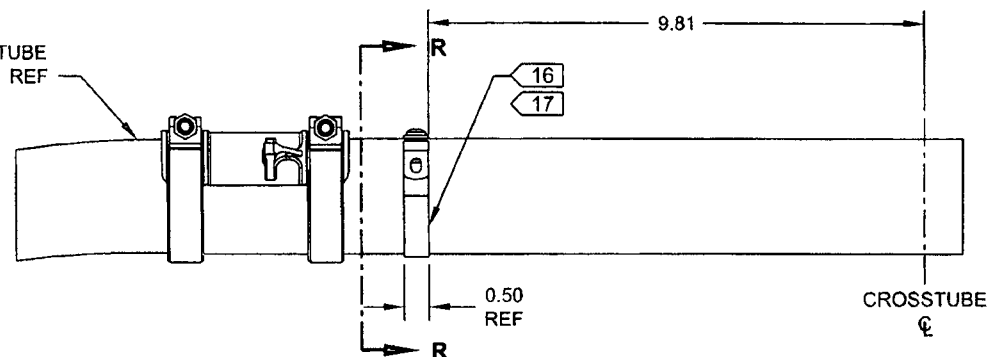
ADD

RELEASED
CP 12.08.17
ECN 12-631



SECTION R-R

D407-667-505 CROSSTUBE REF



DETAIL P
BONDING STRAP INSTALLATION 2 PL

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER

REF. CANADIAN STC: SH01-5

REF. FAA STC: SR01304NY

REF. EASA STC: EASA.IM.R.S.01179

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004

D206-667-103 @ CHG 005

D206-667-107 @ CHG 002

D206-667-201 @ CHG 004

D206-667-203 @ CHG 004

D206-667-207 @ CHG 002

D206-667-101 @ CHG 004

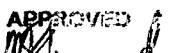
CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D206-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.06" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in-lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out.
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO #01-0-01

APPROVED
BY: 
D. SHEPHERD (DE #02)

DATE: 11.07.20
CERT. NO.: SH01-5
ISSUE NO.: 3

A	NEW ISSUE	CP	11.07.15
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSI 9565	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		SUPPORT INSTALLATION CHANGE	NTS
DATE	11.07.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. D AND EARLIER AND
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 3 AND EARLIER

REF: CANADIAN STC: SH01-5

REF: FAA STC: SR01304NY

REF: EASA STC: EASA.IM.R.S.01179

PURPOSE:

The purpose of this service instruction is to permanently add the D206-667-017 Kit to the DXXX-667-101/-103/-105/-107 Crosstube kits.

INSTRUCTIONS:

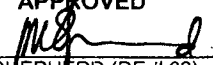
DXXX-667-101/-103/-105/-107 Crosstubes at CHG 005/006/005/003 (respectively) and later are supplied with the D206-667-017 Grounding Strap Kit installed per section 3.2 of IIN-D206-667 Rev. D.

WEIGHT AND BALANCE

There is a negligible weight change associated with the installation of this kit.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

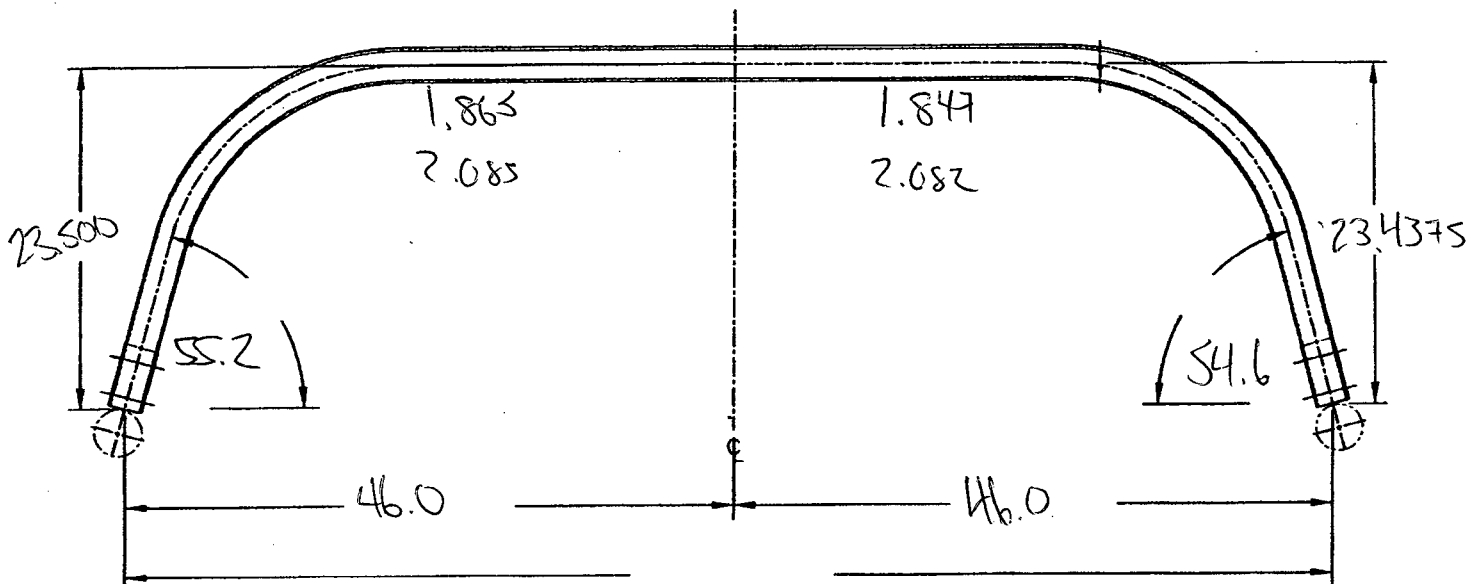
BY: 
D. SHEPHERD (DE # 02)

DATE: 12.08.02
CERT. NO.: SH01-5
ISSUE NO.: 3

A	NEW ISSUE (REF CIR 12-3)	AJS	11.08.02
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9628	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		GROUNDING STRAP INSTALLATION	NTS
DATE	12.08.02	COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DART AEROSPACE LTD	Work Order:	
Description: Crosstube High Fwd (407)	Part Number:	D407-667-105
Inspection Dwg: D407-667-145	Rev: C	Page 1 of 1

Required Dimension	Min	Max
Height	23.41	23.67
1/2 Span	45.81	46.07
Angle	54	56
Total Span	91.62	92.14
Bending Passes	6	--
Crushing	--	6%



	Side A	Side B
Bending Passes	15	15
Crushing	5.6	5.9%
Comments		

QC15 Inspection	DAS 9 989
Date	16.06.13

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.12	Dimensions updated per Dwg Rev C	KJ	
C	12.04.16	Added bending, crushing dimensions	KJ	
D	12.10.30	Revised Total Span dimensions & Dwg Rev	KJ	ip



skyservice
Air travel. Evolved.

NDT Work Order

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: YYZ

70665

Customer:

DART AEROSPACE

Dept: NDT YYZ

Reference: PO 32709

Make:

Model:

Reg:

A/C S/N:

TSN:

CSN:

TSO:

Tail#:

Task: ☐ Scheduled ☐ Unscheduled ☐ A.O.G. ☒ P.T. ☐ M.T. ☐ E.T. ☐ U.T. ☐ R.T.

Work Required:

CARRY OUT NDT ON FWD CROSSSTUBES - HIGH 467 ID D467-667-105PA
ON THE FOLLOWING WORK ORDER ID ITEMS:

① W.O. ID 146716

② W.O. ID 146717

③ W.O. ID 146718

④ W.O. ID 147192

Action Taken:

Date:

Initial/Stamp:

LIQUID PENETRANT INSPECTION

CARRIED OUT ON ITEMS LISTED ABOVE 15 JUN 2016

① W.O. ID 146716 - NO CRACKS FOUND

② W.O. ID 146717 - NO CRACKS FOUND

③ W.O. ID 146718 - NO CRACKS FOUND

④ W.O. ID 147192 - NO CRACKS FOUND

BLACK LIGHT - S/N T-20990N

PENETRANT ARDROX 970 P2SE

BATCH #
TPO-14086

EXP. DATE
30 SEP 2016

I certified that the maintenance described above has been performed with the applicable standard of airworthiness.

Signature:

Name:

GARY SMITH

ACA/SCA Stamp



Date:

15 JUN
2016



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32709**

Purchase Order Date 6/15/2016

PO Print Date 6/15/2016

Page Number 1 of 4

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 905-678-5636

Ship To Contact
Ship To Phone
Ship Via: Delivered
Ship Acct:

Buyer
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	146719 ✓	D407-667-205PHI	6/15/2016 No 6/15/2016		1.00	\$174.44	\$174.44
Line Total:							\$174.44
2	146720 ✓	D407-667-205PHI	6/15/2016 No 6/15/2016		1.00	\$174.44	\$174.44
LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2							
Line Total:							\$174.44
3	146721 ✓	D407-664-205PHI	6/15/2016 No 6/15/2016		1.00	\$174.44	\$174.44
LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2							

Note:

6/15/2016



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32709**

Purchase Order Date 6/15/2016

PO Print Date 6/15/2016

Page Number 2 of 4

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 905-678-5636

Ship To Contact
Ship To Phone

Ship Via: Delivered
Ship Acct:

Buyer
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Total: \$174.44

4	147193	✓	D407-667-205PHI	6/15/2016	1.00	\$174.44	\$174.44
				No			
				6/15/2016			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$174.44

5	146716	✓	D407-667-105PHI	6/15/2016	1.00	\$174.44	\$174.44
				No			
				6/15/2016			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$174.44

6	146717	✓	D407-667-105PHI	6/15/2016	1.00	\$174.44	\$174.44
				No			
				6/15/2016			

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Note:

6/15/2016



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32709**

Purchase Order Date 6/15/2016

PO Print Date 6/15/2016

Page Number 3 of 4

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB FCA - (Free Carrier)

Line Total: \$174.44

7 146718 ✓ D407-667-105PHI 6/15/2016 1.00 \$174.44 \$174.44
No
6/15/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$174.44

8 147192 / D407-667-105PHI 6/15/2016 1.00 \$174.44 \$174.44
No
6/15/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$174.44

9 145661 ✓ D4464-041 6/15/2016 1.00 \$174.44 \$174.44
No
6/15/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Note:

6/15/2016



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32709**

Purchase Order Date 6/15/2016

PO Print Date 6/15/2016

Page Number 4 of 4

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB FCA - (Free Carrier)

Line Total: \$174.44

10	71401-45	PROCUREMENT QUALITY CLAUSE	6/15/2016	1.00	\$0.00	\$0.00
----	----------	-------------------------------	-----------	------	--------	--------

No

Procurement Quality Clauses

6/15/2016

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality document

Line Total: \$0.00

PO Total: \$1,569.96

Note: Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Change Nbr: 2

Change Date: 6/15/2016

REFERENCE ONLY

DART AEROSPACE LTD.

IIN-D206-667

Page 17 of 19

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
		X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
			X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
				X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
					X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
						X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1	1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2		1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3			1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4				1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5					1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6						1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10	*2	*2	*2		*2		D2891-1	SUPPORT
11				*2			D2892-1	SUPPORT
12						*1	D2894-1	SUPPORT
13	*4	*4	*4		*4		D3595-063-395	RUBBER CUSHION
14				*4			D3595-063-450	RUBBER CUSHION
15						*2	D3595-075-430	RUBBER CUSHION
16	*4	*4	*4		*4		MS21920-20	CLAMP
17				*4		*4	MS21920-22	CLAMP
18						*2	MS21920-25	CLAMP (OR MS21920-24)
19	4	4	4		4		AN5-32A	BOLT
20				4		4	AN5-34A	BOLT
21	4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22	8	8	8	8	8	8	NAS1149C0563J	WASHER (OR AN960JD516)
23						*2	D3190-1	CHAFING SHIELD
40	*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41	*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42		2					D2872-043	NUT PLATE
43		2					D2872-045	NUT PLATE
44	10		10				AN5-7A	BOLT
45		10		10	10	10	AN5-10A	BOLT
46	4	10	4		4		AN5-30A	BOLT
47				4		4	AN5-32A	BOLT
48			12				AN970-4	WASHER (OPTIONAL)
49		6					MS21042L5	NUT (OR MS21042-5)
50	10	12	10	10	10	10	NAS1149C0563J	WASHER (OR AN960JD516)
60		1					D3039-3	CENTER DRILL (TOOLING, NOT INSTALLED)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245
ASSEMBLIES ABOVE

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Revision: D

Date: 11.05.01

May 20, 2016 2:36:03 PM

Item ID: D407-667-105PHI Accept *N900040100* Setup Start *NS1*

Revision ID: Stop *NS2*

Item Name: Fwd Crosstube - High 407

Start Date: 5/17/2016 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 6/10/2016 Req'd Qty: 1.00 *1*

Customer:

Reference: 22

Run Start *NR1*

Approvals: Process Plan: Date: Tooling: Date:

Stop *NR2*

QC: Date: SPC (Y/N): Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D407-667-145	Rev C (DEO)
DSI9565	A
DSI9628	A

100 Document Control 0.00

100

DC Memo 0.00

Doc.Control -USB or Paperwork Photocopy bluefile and create labels as per PPP D407-667-105 CHG005

110 Packaging 0.00

110

Packaging Memo 0.00

Packaging

Handwritten signature and date 16-06-13